




# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/707,435	11/06/2000	Debra D. Wawro	UTSL:058US/MTG	9722
	7590 09/21/2004		EXAMINER KAO, CHIH CHENG G	
Mark T. Garrett Fulbright & Jaworski L.L.P. Suite 2400 600 Congress Avenue Austin, TX 78701			ART UNIT 2882	PAPER NUMBER

DATE MAILED: 09/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/707,435	<b>Applicant(s)</b> WAWRO ET AL.	
	<b>Examiner</b> Chih-Cheng Glen Kao	<b>Art Unit</b> 2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 July 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12,14-35,38-51 and 61-66 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12,14-35,38-51 and 61-66 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                            | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 46 is objected to because of the following informality, which appears to be a minor draft error creating grammatical issues. In the following format (location of objection; suggestion for correction), the following suggestion may obviate the objection: (claim 46, line 2, “comprises dielectric”; inserting - -material- - after “dielectric”). For purposes of examination, the claim has been treated as such. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, 5-10, 38, and 40-42 are rejected under 35 U.S.C. 102(e) as being anticipated by Dawes et al. (US Patent 6488414).

3. Regarding claims 1 and 38, Dawes et al. discloses a device and method comprising at least one waveguide having an end and endface (Fig. 8) and a waveguide grating on the endface having at least one waveguide layer (Fig. 8, #40) and at least one grating layer (Fig. 8, #26, and col. 4, lines 46-49).

4. Regarding claim 2, Dawes et al. further discloses a fiber (Title).
5. Regarding claim 5, Dawes et al. would necessarily have at least one grating layer comprising a polymer, since this is characteristic of plastics (col. 2, lines 8-16).
6. Regarding claim 6, Dawes et al. further discloses at least one waveguide layer comprising a dielectric material (col. 3, lines 34-35).
7. Regarding claims 7, 8, and 40, Dawes et al. further discloses at least one grating and waveguide layer comprising the same polymer layer (Fig. 8, #26, and col. 2, lines 8-16).
8. Regarding claim 9, Dawes et al. further discloses the at least one grating and waveguide layer comprising different layers in contact with each other (Fig. 8, #40 and 26).
9. Regarding claim 10, Dawes et al. further discloses at least a third layer in contact with at least one waveguide layer, one grating layer, or both the waveguide and grating layer (Fig. 8, left half of #26).
10. Regarding claims 41 and 42, Dawes et al. further discloses dipping and patterning (col. 11, lines 4-67).

Art Unit: 2882

11. Claims 38, 39, 46, and 47 are rejected under 35 U.S.C. 102(e) as being anticipated by Farah (US Patent 5891747).

12. Regarding claim 38, Farah discloses a method comprising at least one waveguide having an end and endface (Fig. 4B, #6) and a waveguide grating on the endface having at least one waveguide layer and at least one grating layer (Fig. 4B, #43).

13. Regarding claim 39, Farah further discloses cleaving (col. 5, lines 15-17).

14. Regarding claims 46 and 47, Farah further discloses etching at least one dielectric grating (col. 14, lines 62-65).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dawes et al. as applied to claim 1 above, and further in view of Bhagavatula (US Patent 4953947).

Dawes et al. discloses a device as recited above.

However, Dawes et al. does not disclose a waveguide rectangular in shape.

Bhagavatula teaches a waveguide rectangular in shape (Fig. 7).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the device of Dawes et al. with the rectangular shape of Bhagavatula, since such a modification would have involved a mere change in the shape of the waveguide. Changing the shape of the waveguide is generally recognized as being within the level of ordinary skill in the art (col. 6, lines 7-13) as shown by Bhagavatula. One would be motivated to incorporate this change to better propagate light in a rectangular pattern (Fig. 7) as implied from Bhagavatula.

16. Claims 4, 11, 12, 14, and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dawes et al. as applied to claims 1, 9, 10, and 38 above, and further in view of Magnusson et al. (US Patent 5598300).

17. Regarding claims 4 and 46, Dawes et al. discloses a device and method as recited above.

However, Dawes et al. does not disclose a dielectric grating.

Magnusson et al. teaches a dielectric grating (col. 2, lines 24-26, and col. 12, lines 48-50).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the device and method of Dawes et al. with the grating of Magnusson et al., since one would be motivated to incorporate this for significantly improved filter characteristics (col. 7, lines 23-25) as shown by Magnusson et al.

18. Regarding claims 11, 12, and 14, Dawes et al. discloses a device as recited above.

However, Dawes et al. does not disclose at least a third dielectric layer in contact with a grating layer comprising metal.

Magnusson et al. teaches a third dielectric layer in contact with a grating layer (Fig. 6, “ $\epsilon_2$ ”) comprising metal (col. 12, lines 48-50).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the device of Dawes et al. with the third layer of Magnusson et al., since one would be motivated to incorporate this for significantly improved filter characteristics (col. 7, lines 23-25) as implied from Magnusson et al.

19. Claims 15-19, 22, 24-35, and 61-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dawes et al. in view of Magnusson et al. and Baets et al. (US Patent 6191890).

20. Regarding claims 15 and 35 and for purposes of being concise, Dawes et al. as modified above suggests a device as recited above.

However, Dawes et al. does not disclose grating fill factor as a variable parameter.

Baets et al. teaches grating fill factor as a variable parameter (col. 8, lines 55).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the suggested device of Dawes et al. as modified above with the grating fill factor as a variable parameter of Baets et al., since one would be motivated to incorporate this parameter to optimize the grating (col. 8, lines 45-60) as implied from Baets et al.

Art Unit: 2882

21. Regarding claim 16, Dawes et al. further discloses a source coupled to the proximal end (col. 1, lines 15-19), wherein the signal contacts the waveguide grating and is reflected in whole or part, or transmitted through the waveguide in whole or part, depending at least partially upon parameters (Fig. 8).

22. Regarding claims 17 and 18, Dawes et al. further discloses a continuous wave source or laser (col. 14, line 50).

23. Regarding claim 19, Dawes et al. further discloses a photodetector operationally coupled to the waveguide (col. 12, lines 14-15).

24. Regarding claim 22, Dawes et al. further discloses a fiber (Title).

25. Regarding claim 24, Dawes et al. as modified above suggests a device as recited above.

However, Dawes et al. does not disclose a dielectric grating.

Magnusson et al. further teaches a dielectric grating (col. 2, lines 24-26, and col. 12, lines 48-50).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to further modify the device of Dawes et al. with the grating of Magnusson et al., since one would be motivated to incorporate this for significantly improved filter characteristics (col. 7, lines 23-25) as shown by Magnusson et al.



Art Unit: 2882

26. Regarding claim 25, Dawes et al. would necessarily have at least one grating layer comprising a polymer, since this is characteristic of plastics (col. 2, lines 8-16).

27. Regarding claim 26, Dawes et al. further discloses at least one waveguide layer comprising a dielectric material (col. 3, lines 34-35).

28. Regarding claims 27, 28, and 63, Dawes et al. further discloses at least one grating and waveguide layer comprising the same polymer layer (Fig. 8, #26, and col. 2, lines 8-16).

29. Regarding claims 29 and 64, Dawes et al. further discloses the at least one grating and waveguide layer comprising different layers in contact with each other (Fig. 8, #40 and 26).

30. Regarding claims 30 and 31, Dawes et al. further discloses at least a third layer in contact with at least one waveguide layer, one grating layer, or both the waveguide and grating layer (Fig. 8, left half of #26).

31. Regarding claims 32-34, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

Art Unit: 2882

32. Regarding claims 61 and 65, Dawes et al. further discloses the grating and waveguide layers have the same permittivities (Fig. 8, #26).

33. Regarding claims 62 and 66, Dawes et al. as modified above suggests a device as recited above.

However, Dawes et al. does not specifically disclose the grating and waveguide layers having different permittivities.

Magnusson et al. further teaches the grating and waveguide layers having different permittivities (Fig. 1).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to further modify the device of Dawes et al. with the permittivities of Magnusson et al., since one would be motivated to incorporate these for significantly improved filter characteristics (col. 7, lines 23-25) as implied from Magnusson et al.

34. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dawes et al. in view of Magnusson et al. and Baets et al. as applied to claim 19 above, and further in view of Kash et al. (US Patent 5343542).

Dawes et al. as modified above suggests a system as recited above.

However, Dawes et al. does not disclose a detector comprising silicon.

Kash et al. teaches a detector comprising silicon (col. 11, line 28).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the device of Dawes et al. as modified above with the detector

Art Unit: 2882

comprising silicon of Kash et al., since one would be motivated to incorporate this to better image light at longer wavelengths (col. 11, lines 25-30) as implied from Kash et al.

35. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dawes et al. in view of Magnusson et al. and Baets et al. as applied to claim 19 above, and further in view of Epworth (US Patent 4533247).

Dawes et al. as modified above suggests a system as recited above.

However, Dawes et al. does not disclose a detector comprising a human eye.

Epworth teaches a detector comprising a human eye (col. 3, lines 60-63).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the device of Dawes et al. as modified above with the photodetector comprising a human eye of Epworth, since one would be motivated to keep manufacturing costs down by not needing a machined optical detector if all that is necessary for use is the human eye (col. 3, lines 60-65) as implied from Epworth.

36. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dawes et al. in view of Magnusson et al. and Baets et al. as applied to claim 15 above, and further in view of Bhagavatula.

Dawes et al. as modified above suggests a device as recited above.

However, Dawes et al. does not disclose a waveguide rectangular in shape.

Bhagavatula teaches a waveguide rectangular in shape (Fig. 7).

Art Unit: 2882

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the device of Dawes et al. as modified above with the rectangular shape of Bhagavatula, since such a modification would have involved a mere change in the shape of the waveguide. Changing the shape of the waveguide is generally recognized as being within the level of ordinary skill in the art (col. 6, lines 7-13) as shown by Bhagavatula. One would be motivated to incorporate this change to better propagate light in a rectangular pattern (Fig. 7) as implied from Bhagavatula.

37. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dawes et al. as applied to claim 38 above, and further in view of Farah.

Dawes et al. as modified above suggests a device as recited above.

However, Dawes et al. does not disclose cleaving.

Farah teaches cleaving (col. 5, lines 15-17).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the method of Dawes et al. with the cleaving of Farah, since one would be motivated to incorporate to better shape the waveguide (col. 5, lines 15-17) as implied from Farah.

38. Claims 43 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dawes et al. as applied to claim 42 above, and further in view of Hobbs (WO 97/47997).

Dawes et al. discloses a method as recited above.

However, Dawes et al. does not disclose holographic interferometry or photolithography patterning.

Hobbs further teaches holographic interferometry (Page 1, "Field of Invention") or photolithography patterning (Page 2, top paragraph).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the suggested method of Dawes et al. with the patterning techniques of Hobbs, since one would be motivated to use these techniques to produce periodic structures (Page 1, "Field of Invention") as implied from Hobbs.

39. Claims 45 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dawes et al. as applied to claims 40 and 38 above, and further in view of Levenson et al. (US Patent 5291574).

Dawes et al. discloses a method as recited above.

However, Dawes et al. does not disclose spin coating or sputtering.

Levenson et al. teaches spin coating or sputtering (col. 2, lines 33-36).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the method of Dawes et al. with the spin coating or sputtering of Levenson et al., since one would be motivated to incorporate spin coating or sputtering to better add layers (col. 2, lines 33-36) as implied from Levenson et al.

40. Claims 49-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dawes et al. as applied to claim 38 above, and further in view of Dimos et al. (US Patent 6096127).

Dawes et al. discloses a method as recited above.

However, Dawes et al. does not disclose thermal evaporation, electron-beam evaporation, or liquid phase epitaxy.

Dimos et al. teaches thermal evaporation, electron-beam evaporation, or liquid phase epitaxy (col. 1, lines 30-40).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the method of Dawes et al. with the various depositing methods of Dimos al., since these methods are well known in the art and since one would be motivated to incorporate these methods to better deposit layers (col. 1, lines 30-50) as implied from Dimos et al.

#### *Response to Arguments*

41. Applicant's arguments with respect to claims 1-12, 14-35, 38-51, and 61-66 have been considered but are moot in view of the new ground(s) of rejection.

Magnusson et al. still applies for its teachings of a grating as a filter. Farah still applies for its teaching of making a grating. Regardless of the system the grating may be incorporated into, the methods of making gratings are interchangeable, since they are considered art-recognized equivalents, which one with level of ordinary skill in the art would have found obvious to substitute.

Art Unit: 2882

***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571) 272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



gk



EDWARD J. GLICK  
SUPERVISORY PATENT EXAMINER